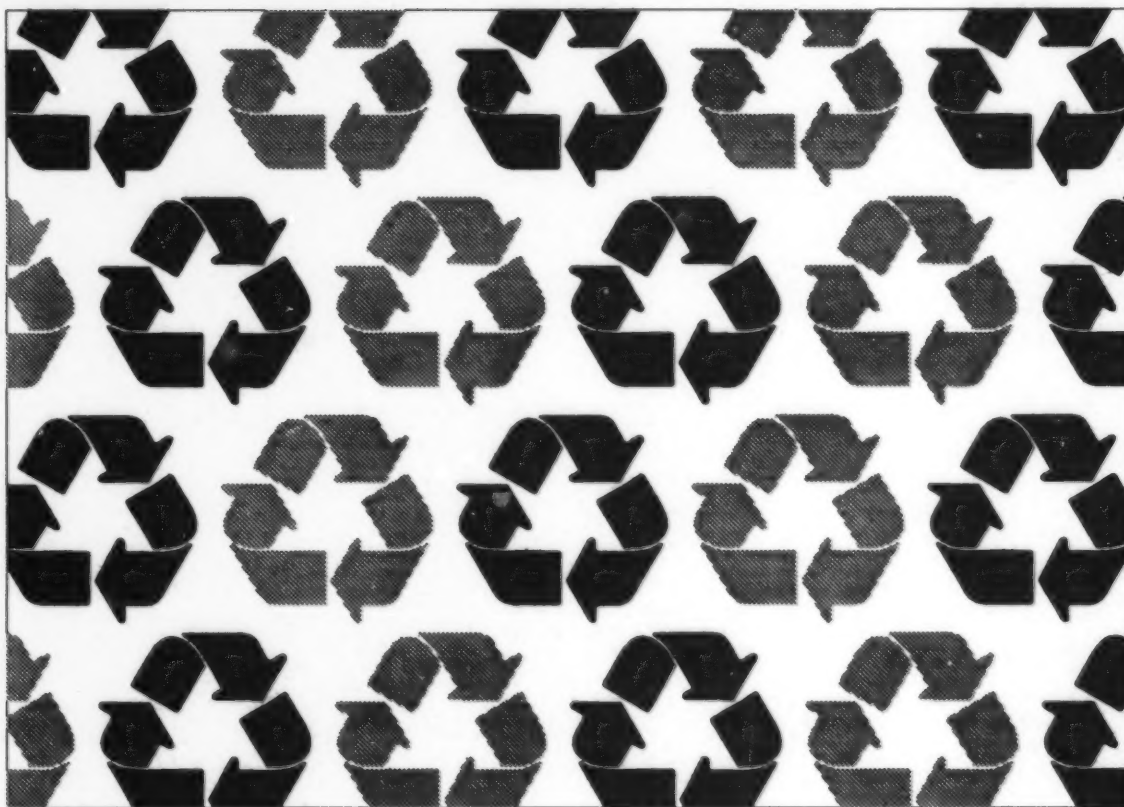




TOWARDS A SUSTAINABLE

WASTE MANAGEMENT SYSTEM

Discussion Paper



Disponible en français.

© Queen's Printer for Ontario, 1990
0-7729-7183-8



TABLE OF CONTENTS

Purpose of this Discussion Paper	3
Introduction	4
The Waste Management Challenge	4
Ontario's Goal: An Environmentally and Financially Sustainable Waste Management System	8
The Principles of a Sustainable Waste Management System	9
Everyone Has a Role	9
Progress Towards a Sustainable System	15
Planning	15
The 3Rs of Waste Management	16
Treatment and Disposal	19
The Decade Ahead	21
Planning	22
Financial Sustainability	23
The 3Rs of Waste Management	29
Treatment and Disposal	33
Call to Action	38
Appendix 1: Current Ontario Government Supported Waste Management Initiatives	40

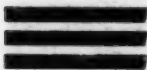


PURPOSE OF THIS DISCUSSION PAPER

This discussion paper provides an overview of how far we have come and where we plan to go in promoting sustainable waste management practices. As well, it proposes that waste management policy be based on “full-cost recovery” — waste producers should pay for all costs of waste management and disposal. Finally, the paper reviews several other areas of concern such as the need for improved waste management facility standards to protect the environment, and the need to continually reduce our reliance on waste disposal.

This paper focuses on waste from residential and industrial/commercial activities. Collectively, these waste streams are called “municipal solid waste” (MSW) because they are managed by municipal authorities through an integrated “waste management system” of collection, transportation, treatment, disposal and recycling operations. Municipal solid waste is exclusive of “hazardous and liquid industrial waste” as defined by Ontario’s *Regulation 309*. Thus, the emphasis of this paper is on the restructuring of municipal solid waste management systems with the goal of making them environmentally and financially sustainable.

It is hoped that *Towards a Sustainable Waste Management System* will serve as a framework for the ongoing dialogue involving concerned citizens, business, public interest groups and all levels of government about the future of waste management in Ontario.



INTRODUCTION

The Waste Management Challenge

Disposal made sense in the past; it appeared to impose few environmental penalties when Ontario had a smaller and more dispersed population, a lower level of economic activity and much smaller material consumption. Every year, however, the Ontario economy produces ever increasing quantities of waste. In 1987, Ontario generated approximately ten million tonnes of waste, more than one tonne for every person. Almost half of the non-hazardous solid waste is residential; the remainder is from industrial/commercial sources. The proportions of residential and industrial/commercial waste vary with the size and industrial base of a community.

Waste volumes are growing at an especially rapid rate in urban areas — increasing by a per capita rate of 25 per cent over the past decade. As a result, landfill sites in high growth areas like Metro Toronto are accepting 80 per cent more waste than ten years ago. This rate of growth would strain any disposal system.

Moreover, while Ontario creates more waste, waste disposal capacity is not meeting this additional demand. The province relies extensively on landfills, but these facilities are reaching capacity and will soon be closed. Some 160 landfills have less than two years of approved remaining capacity.

Landfills also pose environmental problems. They use land suitable for agriculture, housing and recreation. If designed and operated improperly, landfills can generate odours, dust, and litter, and attract scavenging birds and wildlife. Landfill leachate can contaminate ground and surface waters, resulting in human health risks and environmental damage. As a result, landfills require monitoring, post-closure care, and potential long-term cleanup.

In Ontario, as in other industrialized regions, current waste management practices are inadequate:

- Ontario's current waste management system relies too heavily on landfill and not enough on disposal alternatives.
- Landfill disposal uses valuable land, depletes resources, and can contaminate the environment.
- Waste management facilities are not being developed at a rate that is keeping pace with the diminishing capacity of the existing system.
- The "full-cost" of managing wastes including the costs of cleaning-up existing facilities and the environmental costs which they impose are often hidden or unaccounted for. As a result, there are no economic incentives to change our wasteful habits.

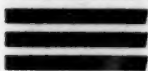
Since waste management is currently paid for out of tax monies either through municipal property taxes or provincial transfer payments, it is difficult to estimate the true cost of disposal. Many cost elements are buried at various levels of government. Consequently, disposal costs are artificially low, resulting in cost inequities for disposal alternatives and disincentives for waste reduction.

The uncontrolled growth of waste generation must be checked and reversed. Dependence on disposal must give way to the full range of conservation and disposal alternatives.

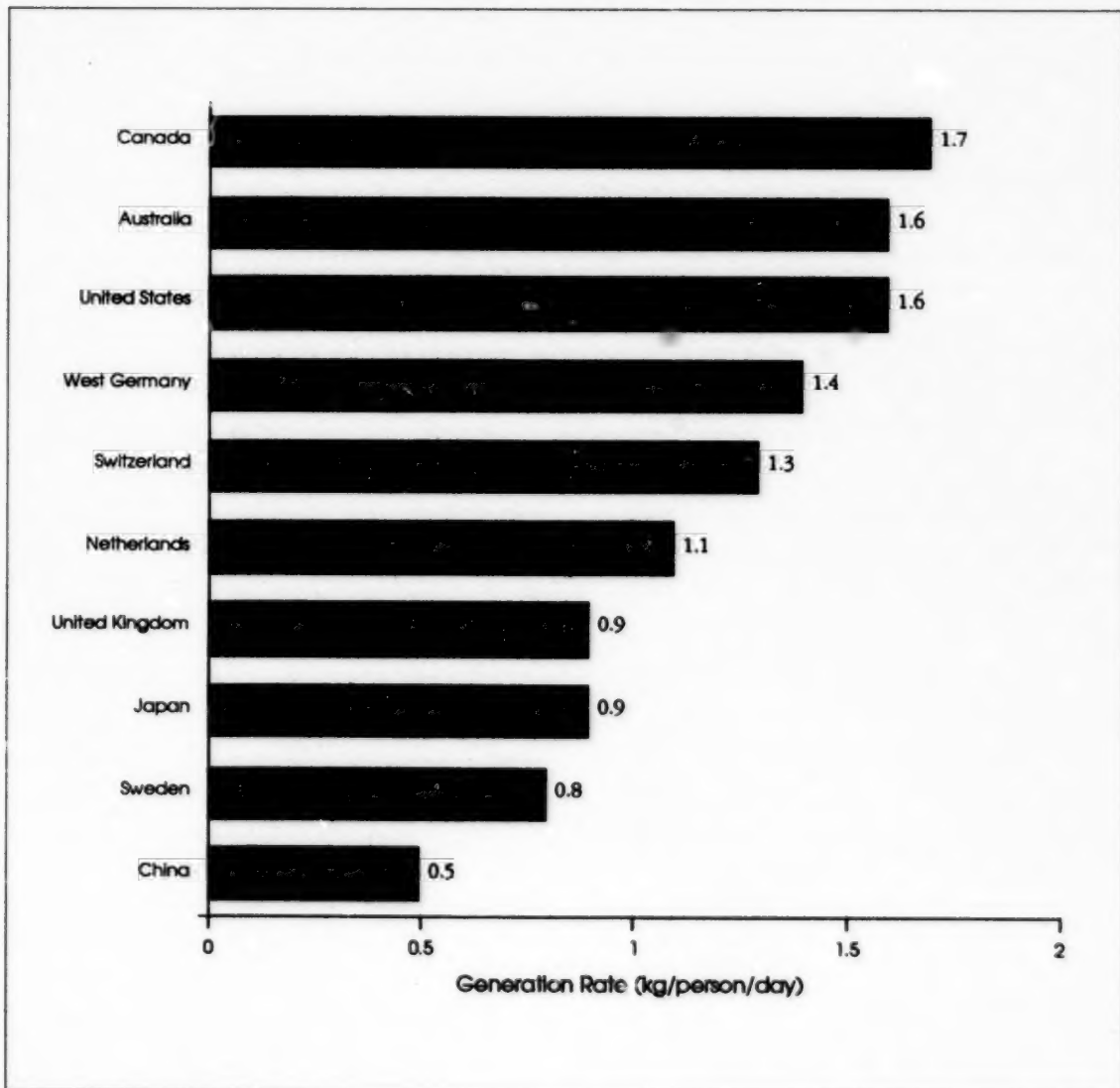


At the same time, we must continue to ensure that all existing and new waste management facilities are designed, operated and maintained to protect human health and the environment. Changing technology presents a constant challenge; facility standards need periodic review to confirm that they are rigorous, consistent and technically defensible.

The issues of uncontrolled waste growth, limited disposal capacity, deficiencies in disposal facilities, and planning and approval complexities are challenging our ability to deal with waste. Waste management in Ontario today is neither environmentally nor financially sustainable.



Comparison of Waste Generation Rates Among Selected Nations (kg/person/day)



Source: Washington Analysis Corp. 1989



ONTARIO'S GOAL: AN ENVIRONMENTALLY AND FINANCIALLY SUSTAINABLE WASTE MANAGEMENT SYSTEM

The Ontario Government is taking action to promote a new approach to waste management. In recent years, there have been a number of achievements. Regulations have been developed that promote cradle-to-grave management of liquid industrial and hazardous waste. The Province also helps finance the internationally recognized "Blue Box" recycling program, provides funding for improved municipal waste treatment and disposal, and has established a framework for municipalities to improve their waste management planning.

On March 10, 1989, the Ontario Minister of the Environment announced provincial targets for waste diversion from disposal. Ambitious but achievable targets of 25 per cent waste diversion by 1992 and 50 per cent by the year 2000 were set. Waste will be diverted through reduction, reuse and recycling — the 3Rs of waste management.

The Ministry of the Environment has also announced \$225 million of additional funding to the year 2000 for the development of new 3Rs programs and the expansion of some existing ones. This announcement marked a new phase for waste management in Ontario which goes beyond the Blue Box recycling program. It also reflects the Government's commitment to the goal of an environmentally and financially sustainable waste management system.



The 3Rs Hierarchy of Waste Management

- Reduction: Generating less waste to begin with, such as by consumers avoiding the purchase of disposable goods or by industries changing production processes to generate fewer unusable by-products.
- Reuse: Using an item again in its original form for the same or a different purpose.
- Recycling: Separating or extracting waste materials to meet a market demand, through systems such as source separation, centralized composting, and waste processing of mixed waste to recover useful materials.

The Principles of a Sustainable Waste Management System

Greatly Reduced Reliance on Disposal

By promoting the "3Rs" of waste management, waste quantities requiring treatment and disposal drop significantly and continue to decline. Unnecessary consumption of virgin resources are cut to a minimum.

Environmentally Secure Waste Management Facilities

The design and operation of all waste management facilities in Ontario must comply with strict environmental standards to protect human health and the environment.

Timely Facility Development

Forecasting, planning and streamlining of the approvals process allow for the more rapid introduction of all necessary waste management facilities. Innovative ideas are encouraged that provide technologies for ready application.

Financial Sustainability

The full cost of waste management is accounted for and recognized when setting prices for waste producers. Price-induced incentives to wastefulness are reduced or eliminated.

Everyone Has a Role

The creation of a sustainable waste management system will require the combined efforts of the general public, the private sector and all three levels of government. The existing and proposed 3Rs initiatives encourage and depend on this continued cooperation as well as compliance with regulations. All waste generators shall adopt strategies to meet the provincial waste diversion targets.



Municipalities

- Exercising municipal authority to provide various waste management services such as planning, collection, 3Rs, treatment and disposal.
- Integrating all waste management services and facilities including the implementation of 3Rs projects to meet the waste diversion targets.
- Developing and operating environmentally secure waste management facilities that keep pace with residential, commercial and industrial expansion.
- Instituting self-supporting financing systems for all waste management services and facilities.

Municipalities have assumed the primary responsibility for managing municipal solid wastes. The Association of Municipalities of Ontario completed two important reports in 1989 entitled, *The Municipal Waste Abatement Strategy* and *The Waste Management Planning and Approvals Process*. The Province will continue to work with municipalities and build upon many of the innovative ideas expressed in these documents.

The Private Sector

- Complying with provincial and federal regulations on environmental protection and product packaging.
- Demonstrating that responsible waste management is a priority activity and an important part of achieving business goals.
- Developing rules of practice among industrial sector associations, that guide industry towards common 3Rs opportunities and which support markets for recycled products.
- Sharing in the financing of waste recycling systems required to recover secondary materials.
- Undertaking waste audits and modifying processes to incorporate opportunities to reduce, reuse and recycle.
- Incorporating product stewardship principles by considering all waste management implications when designing products.
- Redesigning packaging to conform to 3Rs considerations, including:
 - arranging a return system for the packaging of large electronic goods or appliances.
 - packaging fragile goods in environmentally friendly materials.
 - discouraging the packaging of foods that are consumed on the premises.

The Blue Box

The curbside Blue Box has become the most visible symbol of recycling in Ontario. Funding for the start-up of each Blue Box project was shared jointly by the municipality, Environment Ontario and OMMRI. In 1989, 260,000 metric tonnes of paper, glass, metals and PET (polyethylene terephthalate) soft drink containers were recycled through Blue Box projects.

Ontario Multi-Material Recycling Inc. (OMMRI) is a non-profit capital corporation formed in response to the soft drink container regulations introduced in 1985. It committed \$20 million over a four-year period as their contribution to Ontario's Blue Box infrastructure. OMMRI received its support from the soft drink industry, including container manufacturers and fillers as well as material suppliers.

The General Public

- Avoiding the purchase of products that cause environmental damage during manufacture, use or disposal.
- Avoiding the purchase of products that are over-packaged.
- Purchasing products that are more durable.
- Reusing containers, boxes and bags.
- Purchasing products that are recyclable and/or that contain recycled material.
- Participating in the Blue Box program.
- Repairing items such as appliances.
- Using backyard composters for yard and kitchen wastes.
- Supporting central composting in municipalities where this service is provided by separating yard and kitchen wastes.
- Encouraging all employers to apply the 3Rs in the workplace by reducing the amount of waste generated, reusing materials and recycling paper and other waste materials.
- Taking household hazardous wastes to municipal depots or special waste day events.
- Continuing to participate in the planning and decision-making process for waste management facilities.
- Evaluating waste management issues and future options as part of the waste management master planning process.



The Federal Government

- Setting and enforcing national standards aimed at reducing product packaging.
- Setting national standards for recyclability of packaging and for recycled contents in goods.
- Promoting national market development for recycled materials.
- Providing financial support for waste management initiatives.
- Educating consumers on environmentally sound practices.
- Supporting research and development.

The Provincial Government

- Setting an example through its own waste reduction, reuse and recycling practices and procurement policies.
- Setting and enforcing standards, guidelines and policies on all aspects of waste management including 3Rs, treatment and disposal.
- Providing financial and technical assistance to municipalities for improved waste management facilities and 3Rs programs.
- Reviewing facility plans for approval in a timely fashion.
- Promoting research and development of new and innovative 3Rs technologies and market development.
- Promoting research to enhance the environmental security of landfill sites.
- Promoting awareness of responsible waste management through public information and education programs.



- Providing financial incentives for the implementation of energy-from-waste facilities through the Ministry of Energy.
- Developing models to assist municipalities recover the full cost of waste management services.
- Recognizing special circumstances that exist in remote northern municipalities and unorganized areas. Specific waste management needs of these areas will be reviewed; technical and financial assistance will be considered.
- Resolving the future management and resource requirements associated with upgrading landfill sites that are located on Crown land in unorganized areas of the province.
- Continuing to actively participate with the Federal Government and other Provinces in the development of national policies and packaging regulations.
- Recognizing that provincial legislation requires additional amendments to clarify waste management authority for local county and regional municipalities. Initial steps have already been taken, through the amendment of the *Municipal Act* in July, 1989 to authorize counties to engage in waste management activities. The ministries of Environment and Municipal Affairs will work together with municipalities to ensure that municipal governments have sufficient legislative authority to develop and operate environmentally sound waste management systems including, 3Rs, collection, treatment and disposal functions.



PROGRESS TOWARDS A SUSTAINABLE SYSTEM

We are making progress in our efforts to promote sustainable waste management practices. Metropolitan Toronto reports that, "in 1989, for the first time in the history of Metro, the amount of waste going to disposal was less than the year before. In fact, it was less than two years ago". This is a significant finding because Metro currently generates more than one third of the province's municipal solid waste. The cumulative total of all waste diverted from landfills and incineration by the 3Rs programs in Ontario since 1986 is estimated to be more than 1.25 million tonnes.

Planning

Waste management planning provides the foundation for the development and eventual implementation of an area waste management system. Planning must be co-ordinated with other land use activities to ensure compatibility. The waste management plan must be comprehensive, long-term, include all reasonable waste management options and be developed under the scope of the *Environmental Assessment Act* requirements. Currently, comprehensive planning is 50 per cent funded through the Ministry of the Environment's *Waste Management Master Planning Program*. At present, there are 42 plans at various stages of development. Together they encompass a geographical area that contains 70 per cent of Ontario's population. The Government encourages active public involvement in the preparation and development of waste management master plans.

Municipalities use the waste management master plan as a supporting document for the implementation of landfills and other waste management system components.

The 3Rs of Waste Management

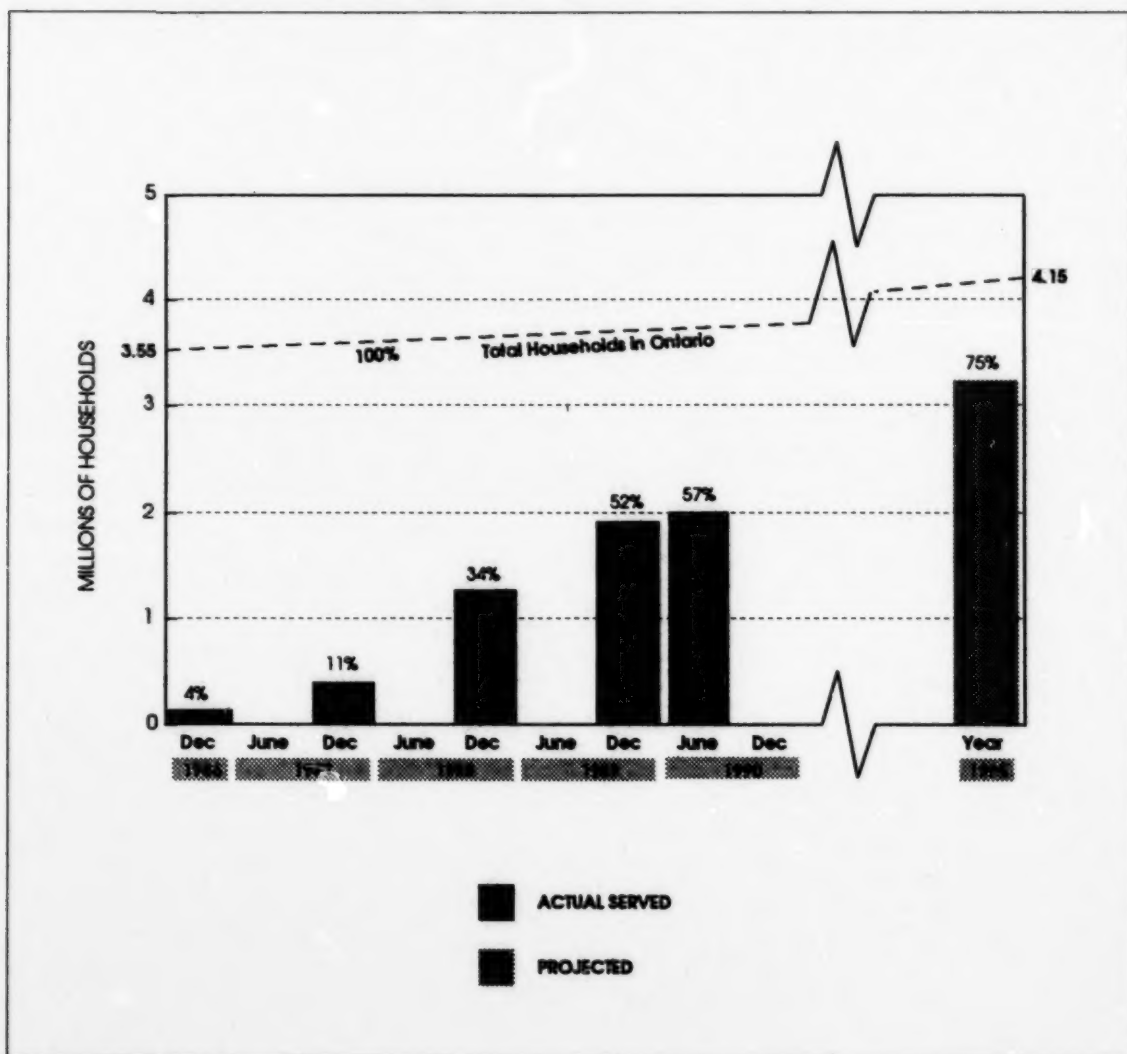
A hierarchy of waste management preference exists with regard to the order and application of 3Rs, namely reduce, reuse and recycle. When waste is reduced at the source, resources are conserved, direct savings in waste volumes occur and waste management costs are eliminated. Reuse extends the life of materials beyond a single use. All 3Rs save energy, resources and disposal space.

Further reduction of municipal solid waste depends on reducing generation rates at the source. Many industrial generators have adopted improved housekeeping process changes and other 3R methods to divert waste from disposal. The growth of "green consumerism" is an indication that many householders are also eager to adopt 3R habits in their daily lives. But despite the growth in public awareness and acceptance of 3Rs, more public education is needed in the areas of reduction and reuse. Waste generators need to know more about the choices they can make and how they can preserve our resources by being less wasteful.

The continued growth of multi-material recycling to include additional wastes from more Ontario communities is an integral part of the overall effort to achieve the waste diversion targets. The "Blue Box" program is responsible for diverting more than 426,000 tonnes of materials from landfill since 1986. Approximately two million single family households now have Blue Boxes. Recycling services have already been extended to 100,000 apartment units. In addition, 100,000 rural households have access to recycling depots. The rapid growth rate of recycling is indicated by a 73 per cent increase in recycled materials during 1989 when compared with the previous year.



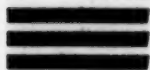
Growth of Residential Recycling In Ontario



The provincial government has initiated measures to become a model waste manager. Standardized use of two-sided copying at the Ministry of Government Services Copy Centre has reduced paper consumption by 20 per cent. Approximately 50 per cent of Ontario government employees in the Metro Toronto area now have access to recycling programs in the workplace. In addition, more than five tonnes of telephone books have been collected in a pilot project that will be expanded to all provincial offices.

The Ministry of the Environment's *Industrial Waste Diversion Program* has provided \$12 million of support for 3Rs initiatives by many progressive industrial and commercial waste generators since 1987. Funding is available for up to 50 per cent of capital costs or, in the case of research and development, 100 per cent of costs. To date, more than 530,000 tonnes of non-hazardous solid waste, 73,000 tonnes of hazardous waste and 15,000,000 litres of liquid industrial waste have been diverted from landfill.

The Province is fulfilling its commitment to centralized and backyard composting through the provision of financial assistance to municipalities. Forty-four thousand backyard composters have been distributed to householders by the end of March, 1990. In addition, a central composting pilot project is underway in the City of Guelph designed to serve six hundred households. Approximately 35 pilot and full-scale leaf composting programs were initiated in 1989. Mississauga, Metro Toronto, Halton, Essex-Windsor and Durham have also undertaken studies to optimize collection methods for compostable materials.



The *Student Action for Recycling Program* currently provides financial support to all of Ontario's school boards that wish to establish recycling programs in their schools. The pilot phase of the program involving sixteen schools was completed in 1989. An application and program guide was developed and has been widely circulated as an aid to help schools start recycling.

From an educational viewpoint, recycling in schools heightens student awareness of environmental issues in general, and more specifically, it provides opportunities for student involvement in community-based waste management issues. More than 400 elementary and secondary schools are actively involved in some form of recycling. Applications for financial assistance from the Ministry of the Environment have recently been received from school boards that represent more than 850 of Ontario's 5,000 schools. Funding is available for two-thirds of the eligible capital costs and 50 per cent of the first year's salary for recycling coordinators.

The Canadian Waste Materials Exchange and the Ontario Waste Exchange both have diverted a variety of waste materials away from landfill disposal. Together, more than 225,000 tonnes of Ontario's waste is estimated to have been transferred from waste generators to users of those wastes during the past three years.

Treatment and Disposal

The Ministry of the Environment advocates the reduction, reuse and recycling of waste and has set a goal of 50 per cent diversion by the year 2000. Waste that cannot be diverted by the 3Rs will require disposal.

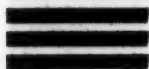


The concepts of resource recovery and energy-from-waste (EFW) are included in Ontario's overall waste management program. The Ministry of the Environment strongly suggests that municipalities address their waste management challenges through a comprehensive waste management master planning process and that it include 3Rs initiatives and consideration of treatment options such as EFW. The Ministry of Energy provides funding for EFW projects, all of which must receive approval from the Ministry of the Environment.

The Ministry of the Environment is committed to applying the strictest environmental standards to EFW facilities and landfills to safeguard environmental and human health. Currently, there are approximately 1,400 active waste disposal sites and five EFW plants for the incineration of waste in the province.

Since the introduction of the *Environmental Protection Act* in 1971, all waste management facilities and systems need approval under Part V of this Act. Their operational requirements are set out in *Ontario Regulation 309*, a general waste management regulation. Through this legislation the Ministry of Environment sets out guidelines and regulatory standards of performance, design, emission control, monitoring, contingencies, closure and other concerns.

Prior to 1971, many landfill sites were established on lands that today may not be considered to be suitable for this use. Environmental controls were either minimal or non-existent, with the result that many active sites need general upgrading, and, in some cases, remediation.



THE DECADE AHEAD

Though we have come a long way, much more needs to be done in order for Ontario to reach the goal of a sustainable waste management system. To achieve this goal we must:

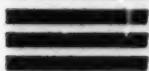
- Entrench the 3Rs principle as the primary way we manage waste.
- Continue to ensure that all waste management facilities comply with strict environmental standards to protect human health and the environment.
- Review and upgrade legislation, policies and guidelines for all waste management facilities.
- Improve the planning and approvals process for all waste management facilities; and
- Finance waste management services in a manner that promotes fairness and encourages the diversion of waste from disposal through the 3Rs.

Planning

Comprehensive long-term planning is needed throughout Ontario to allow all parties to fulfill their roles and to become partners in the resolution of their specific waste management challenges. The Province is reviewing options and needs for legislative amendments that will empower it to require municipal waste management planning where this has not already commenced or is not proceeding as anticipated. The ability to require planning appears to be necessary particularly where the remaining disposal capacity is less than ten years. With this authority, the Ministry of the Environment will be able to require that municipalities take the necessary steps to establish needed waste management facilities.

While waste management master planning is essential, it can be lengthy and expensive, resulting in delays for the implementation of needed facilities. The Ministry of the Environment is developing new guidelines on waste management planning as an aid to municipalities. These guidelines will clarify the administrative procedures for the preparation of waste management master plans.

A task force, under the Ministry of Environment's *Environmental Assessment Program Improvement Project*, has been established to review the administrative experience associated with the *Environmental Assessment Act*. It will identify and propose opportunities to make the program more effective and efficient while preserving the integrity of the Act. A separate discussion paper on this subject is being prepared.



The development of waste management master plans will be assisted by a province-wide staff support team within the Ministry of the Environment. This support unit will be responsible for the co-ordination of waste management projects and will ensure that relevant, clear, consistent and timely assistance is available to proponents and the public.

Financial Sustainability

The Province is committed to eliminating the imbalances in the prevailing system of financing waste management activities. One of the key methods to encourage waste reduction is to ensure that waste generators and beneficiaries of waste management services pay the "full cost" of these services. A waste management system based on full-cost recovery would also provide the revenues needed to operate, close-out and replace waste management facilities. Nevertheless, while waste management systems evolve toward full-cost recovery, financial support will be required for waste management facilities and practices, including 3Rs activities.



Removing Price-Induced Incentives to Wastefulness

Manufacturers and retailers must recognize that there is a cost to the disposal of products and product packaging which they must bear. The Ministry of the Environment is examining ways for waste generators to pay for the full cost of waste disposal. The Ministry is considering a combination of regulations, economic incentives, voluntary action and education to achieve this objective.

Some manufacturers of smoke detectors that contain radioactive materials have offered to properly dispose of these once they are no longer useful. Some chemical producers and suppliers have arranged to take back solvents from users for reprocessing or disposal. These types of arrangements help to ensure that the costs of recycling or final disposal are included in product prices.

Another economic factor that affects solid waste generation is that markets for recycled products have characteristics that complicate and often frustrate recycling efforts. Thus, primary materials often have significant cost and supply availability advantages over recycled materials. As well, government policies and programs can inadvertently contribute to these cost advantages. The Ministry of the Environment is conducting a study which will document the nature and scope of the markets for reused and recycled materials, determine what waste streams and quantities are part of these markets, and estimate the potential for enhanced 3Rs activities.

Tipping Fee

A tipping fee is a term normally used by the waste management industry that defines a charge for receiving and managing that waste at an approved facility.

This fee is usually based on either weight or volume of waste to be managed.

Municipal Solid Waste Management and Financing

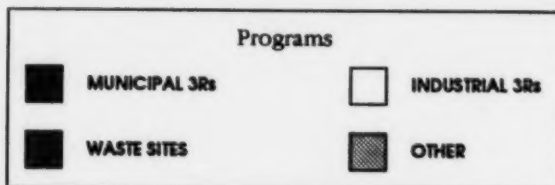
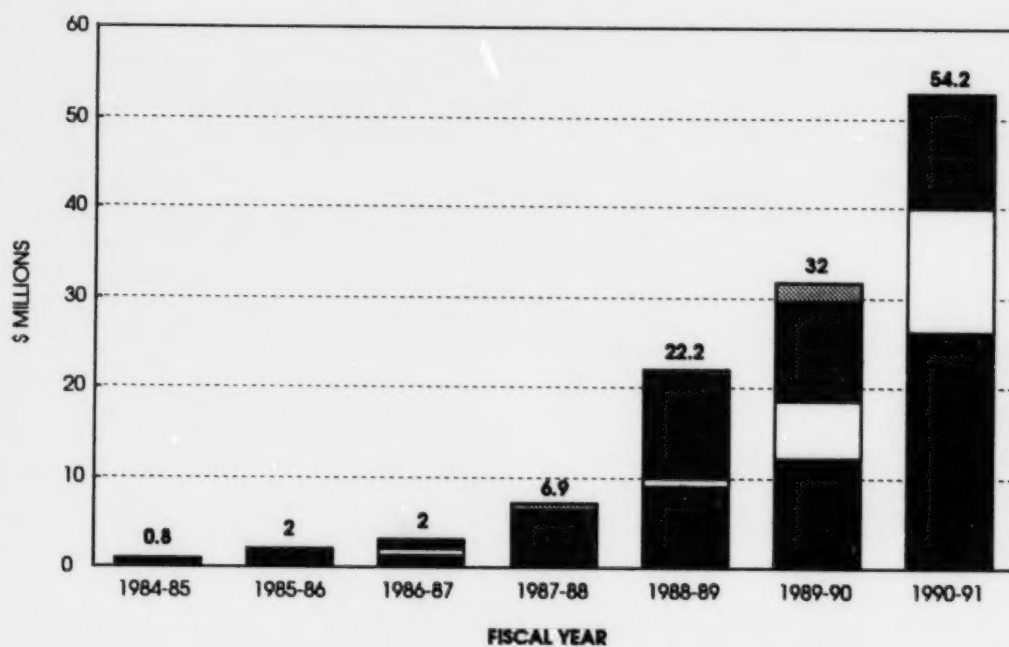
Municipalities have assumed the primary responsibility for the collection, management, and disposal of solid wastes. As a basic principle, municipalities should recover the full cost of these services from waste generators.

Many municipalities in Ontario currently underestimate the cost of operating, closing-out and maintaining landfills and other waste management and disposal facilities. Tipping fees range from non-existent to almost \$100 per tonne. Moreover, tipping fees often do not reflect the full cost of waste management and disposal services. While some municipalities charge high tipping fees to discourage the use of dwindling landfill space, others base their charges only on the current operating cost of a disposal facility. Capital costs and replacement costs are not recovered.

Municipal waste management facilities are also supported by provincial grants. The Ministry of Environment has contributed over \$60 million in financial assistance between 1986-87 and 1989-90 fiscal years for industrial and municipal 3Rs activities and the development of new or improved waste treatment/disposal facilities. In the 1990/91 fiscal year the Ministry will direct another \$54 million towards these activities.



Ministry of Environment Waste Management Programs



To ascertain the full costs of solid waste management and disposal, detailed records of the various waste management cost elements must be prepared. These include:

- Current operating, equipment and land costs;
- Facility replacement costs including development and hearing costs associated with siting new facilities; and
- The costs and revenues associated with future 3Rs activities.

Though the Province currently helps municipalities estimate future solid waste management system costs through waste management planning grants, it is looking for more effective ways to help municipalities develop full-cost accounting systems.

Appropriate mechanisms for raising revenue should be suited to a municipality's particular needs. There are a number of "beneficiary pay" pricing schemes that could be implemented to help recover the revenues needed to pay for current activities and replacement costs, help support waste diversion programs, and permit municipalities to shift the cost of waste management services away from property taxes. These pricing schemes include the following:

- Tipping fee schedules for private haulers that vary according to the type of waste brought to a municipal processing or disposal facility (for example, there could be higher charges for recyclable material);

- Direct pricing schemes applied to household waste generators, that reward efforts to reduce, reuse and recycle waste. Examples include:
 - charging for each bag collected;
 - collecting only bags that are purchased from a municipal waste management authority;
 - charging householders directly through utility bills; and,
 - charging a special fee if a household discards more than a given amount (measured either by weight or by volume) of solid waste per month or annual quarter; and
 - providing a tax credit if the waste generated is less than a given amount.

Municipalities that do not have reserve accounts for new 3Rs and disposal facilities should consider establishing such a fund. This will enable municipalities to acquire the resources needed to expand their waste diversion efforts. As well, a reserve fund will help ensure that those municipalities with dwindling landfill capacity will have the necessary resources available when the need for investment in disposal facilities and services arise.

The Province invites responses from municipalities on how quickly full-cost waste management financing systems can be instituted. Some municipalities, however, may face obstacles. For example, remote northern municipalities and communities in sensitive environmental areas may well require ongoing provincial support.

Waste disposal is a growing challenge in unorganized areas as it is elsewhere in Ontario. At present, the Ontario Government through the Ministry of Natural Resources operates approximately 350 sites in unorganized areas. Many of these sites require upgrading and enhanced maintenance.

National Packaging Protocol

The Canadian Council of Ministers of the Environment (CCME) endorsed the National packaging Protocol (NAPP) in February, 1990. The NAPP recommends six packaging policies for Canada that together support a target of 50 per cent reduction in packaging waste generation by the year 2000:

1. All packaging shall have minimal effects on the Environment.
2. Priority will be given to the management of packaging through source reduction, reuse and recycling.
3. A continuing campaign of information and education will be undertaken to make all Canadians aware of the function and environmental impacts of packaging.
4. These policies will apply to all packaging used in Canada including imports.
5. Regulations will be implemented as necessary to achieve compliance with these policies.
6. All government policies and practices affecting packaging will be consistent with these policies.

Practical solutions for waste management in the unorganized areas are needed. Future management options may include agreements with adjacent municipalities, partnerships with ratepayer associations, privatization of some sites, possible closure of some sites and, in many cases, the continued operation of sites by the Province.

The 3Rs of Waste Management

Additional waste reduction and reuse initiatives will be pursued in the future including public education, industrial and commercial waste audits, and composting. In northern Ontario, 3Rs programs need to be specially tailored so that they meet the needs and problems associated with waste disposal in remote communities and unorganized areas.

Packaging waste is another area which must be addressed if the Province is to achieve its waste diversion targets. Current estimates suggest that nearly one-third of the municipal solid waste stream consists of packaging waste. However, the issues which affect the management of packaging waste through source reduction, reuse and recycling transcend provincial jurisdictions. A strong and nationally-uniform policy, sensitive to provincial waste management initiatives, is required. Thus, the Province is committed to implementing the National Packaging Protocol through the multi-stakeholder process initiated by the National Task Force on Packaging. The Ministry of the Environment is an active member of the Task Force.

To achieve Ontario's waste diversion targets, the "Blue Box" program will be extended to rural areas as well as more apartment dwellers. The kinds of materials collected will also be expanded to include mixed plastics, boxboard and corrugated cardboard. Blue Box-type recycling programs will increase from the current two million households to over three million by the year 1995. "OMMRI II: Corporations in Support of Recycling" and future similar structures will ensure that funding support from the private sector is available for the expansion of this program. The Province will continue to encourage all municipalities, especially those with a population greater than 10,000, to provide Blue Box recycling services and pickup services for apartments.

Composting is also expected to play a significant role in municipal efforts to achieve waste diversion targets. The establishment of centralized composting facilities by municipalities will continue to be encouraged. Continued financial support will be provided by the Ministry of the Environment to further promote the wide distribution of backyard composters to as many householders as possible. An additional 95,000 backyard composting units are projected to be distributed in 1990. Composting guidelines that address the siting of facilities and compost quality will also be available by the fall of 1990.

The *Student Action for Recycling Program* will continue to be promoted to implement recycling in all of the province's 5,000 schools. The potential exists to recycle more than 10,000 metric tonnes of school wastes annually. The Ministry of the Environment is currently preparing a plan for a *Waste Management Education Program* that will provide curriculum-support materials for teachers. The program will be phased-in for selected school subject areas and grade levels beginning in 1991.

The Province currently does not have all the necessary powers to prescribe regulations to cover 3R activities. Accordingly, amendments to the *Environmental Protection Act* are being considered that would grant such powers in the event that waste diversion targets are not being achieved. Thus, the Province will then be in a better position to address the key problems experienced by Ontario's recycling program, such as the temporary oversupply of some waste materials and excess processing capacity.

To examine options for supply-side regulations, audits will be undertaken to determine production practices, waste composition and volumes, and the potential for viable 3R activities. Technical and economic feasibility assessments of specific 3R options will be conducted. As an example, it is desirable to incorporate certain types of foundry sand into asphalt pavement instead of continued disposal into landfill sites. Appropriate regulations will be introduced where voluntary measures have failed to achieve desired results. The intent of such regulations are to ensure that dependable supplies of waste material are available for reuse and recycling.

Options for future development of market-side regulations will also be considered. Regulations could play an important role in the event that sufficient markets are not developed on a voluntary basis. As an example, it is desirable that newspapers contain an appropriate portion of post-consumer recycled fibre. The intent of such regulations is to ensure that reliable markets are available to utilize all of the waste materials made available for reuse and recycling.



Given that the fundamental principle of waste management is waste diversion through the application of the 3Rs, it is essential that disposal facilities be integrated into diversion efforts. The Province, however, does not have the power to require the 3Rs principle to be applied to these facilities. Thus, the Ministry of the Environment will introduce legislation to enable it to withhold Certificates of Approval for waste disposal facilities unless they include the 3Rs as a "front-end" activity. This will enable the Ministry to prohibit waste disposal facilities from receiving wastes which are technically and economically feasible to be recycled. For instance, landfills might be prohibited from accepting corrugated cardboard.

By 1991 the Ministry of the Environment will ensure that staff technically trained and familiar with 3Rs specific technologies will be available to visit industrial and commercial establishments and municipalities to offer on-the-spot information and guidance.

The Province will continue to provide financial support to the Canadian Waste Materials Exchange and the Ontario Waste Exchange. This support helps to enable these agencies to encourage industrial waste recycling by helping Ontario industries find users for those wastes that are produced.

The Province will develop a system to assist product manufacturers to collect materials such as batteries, paints and household pesticide containers. "Household Hazardous Waste Days" have raised awareness of hazardous materials in the home and the importance of their proper management. However, there is the need to increase recovery rates of these materials. This might be achieved by increasing the number of household hazardous waste depots, instituting a deposit system, or a combination of the two approaches.



Treatment and Disposal

Consistent and technically defensible standards, policies and guidelines are needed to ensure a high level of environmental performance of treatment and disposal facilities. However, remaining current with changing technology presents a constant challenge. Periodic review is necessary to ensure that waste management facilities remain state-of-the-art.

The Ministry of the Environment is proposing revisions to the legislation to ensure that new and existing facilities are environmentally sound. To ensure that all existing and new waste management facilities are designed, operated and maintained to protect human health and the environment amendments to legislation are required as noted below.

Regulation 309

Municipalities and other stakeholders have indicated that *Regulation 309*, in its current form as it applies to municipal waste management, does not give sufficient detail and direction, especially with respect to smaller and remote sites. Accordingly, it is proposed that *Regulation 309* be amended to make criteria for municipal waste management more specific. Waste disposal sites would be classified into different categories based on two criteria: proximity to and nature of surrounding land use, and lifetime capacity for which the facility is designed. However, adjacent land use would neither be restricted nor controlled through this amended regulation.



The degree of site usage is proposed to be categorized into three groups based on a site life of 20 years: heavy (lifetime capacity more than 200,000 m³), medium (lifetime capacity between 40,000 m³ and 200,000 m³) and light (lifetime capacity less than 40,000 m³). Land-use separation distances from sensitive land use are proposed to be categorized into three groups as well: urban (less than 500 metres separation); rural (between 500 metres and 3 kilometres separation); and, isolated (greater than 3 kilometres separation).

Operating standards will be developed for each of the landfill site categories for such things as buffer zones, contingency plans, hydrogeological and hydrological evaluation, cell cover, final cover, leachate control, gas control and monitoring programs. Existing landfill sites will also be required to conform to these new standards. A transition phase of two years after the promulgation of the regulation is proposed.

Proposed Landfill Site Categorization

Landfill Group	Minimum Distance of Landfill from Sensitive Land Use	Lifetime Capacity of Landfill Site
Isolated Sites	3 kilometres	< 40,000 m ³ 40,000 - 200,000 m ³ > 200,000 m ³
Rural Sites	500 metres to 3 kilometres	< 40,000 m ³ 40,000 - 200,000 m ³ > 200,000 m ³
Urban Sites	500 metres	< 40,000 m ³ 40,000 - 200,000 m ³ > 200,000 m ³

m³ = cubic metres

With the emerging need for new 3Rs and treatment/disposal facilities, the Province proposes the development of new standards, policies and guidelines for these facilities. These documents will provide guidance to proponents in meeting technical and approval requirements and will also assist the public in understanding design and operating requirements for the following facilities:

- Recycling facilities;
- Processing facilities;
- Mobile waste processing facilities;
- Waste transfer facilities;

Legal Framework

Environmental Protection Act (EPA)

The EPA authorizes the Ministry to control the discharge of any contaminant into the natural environment. Part V of this Act specifically deals with the establishment and operation of waste management facilities. Facility standards and level of contamination discharge to the environment are prescribed in Ontario Regulation 309 (a general waste management regulation).

Environmental Assessment Act (EAA)

The EAA provides for the assessment of the environmental impacts of any proposed public undertaking or a designated private undertaking during the planning phase. The Act requires an evaluation of alternative methods of carrying out the project and encourages full public participation in the decision-making process.

In addition, an interpretation manual for *Regulation 309* will be developed. This manual will clarify regulatory requirements for specific sections of the regulation as an aid to proponents and other interested parties.

To provide further assistance in the interpretation of *Regulation 309*, new guidelines will be developed including:

- **Inert Fill:** To identify those materials that are acceptable environmentally and technically for use in construction or in terrain rehabilitation in order to preserve valuable landfill capacity.
- **Financial Assurance:** To require all facility owners to provide a bond or guaranteed funds to ensure that post-closure monitoring, remedial measures and contingencies will be financed without reliance upon public funds.

The Environmental Protection Act

Proposed *Environmental Protection Act* amendments will ensure that all proponents of waste management facilities, whether public or private, are treated equally. This will be achieved by applying the *Environmental Assessment Act* to major private sector waste management projects.

The statutory limit on closed landfill site reuse is proposed to be removed. Under this amendment, control on the reuse of a closed site will apply in perpetuity rather than for the existing 25-year limit under Section 45 of the *Environmental Protection Act*. There have been a number of incidents where methane gas has migrated to adjacent structures from landfill sites that have been closed for decades. This change will ensure that the health and safety of the on-site and the adjacent land users is protected.

Some waste management site and system operators have created adverse public health and environmental situations due to poor operating practices. Yet, these same operators can either expand, continue or get back into the waste management field with little difficulty. The Ministry of the Environment is proposing that the past performance of proponents be considered in the application process for a Certificate of Approval.

There have been occasions during the planning process, when proponents have been hindered in the evaluation and monitoring of a preferred site by land owners refusing their entry. Granting authority under the *Environmental Protection Act* and the *Municipal Act*, with constraints, for proponents to access private lands is proposed to alleviate this situation. This will assist in determining the suitability of the land for the establishment of waste management facilities by means of field testing, monitoring and investigation.

Existing Criteria for the Application of the *Environmental Assessment Act* and the *Environmental Protection Act* to the Establishment of Waste Management Facilities

Waste Type	Landfill	Energy from Waste Incineration	Processing Treatment*	Transfer*
Solid Non-Hazardous Waste From Industrial, Commercial and Residential Sources	≥ 40,000 M ³ :EAA < 40,000 M ³ :EPA	≥ 100 TPD:EAA < 100 TPD:EPA	≥ 200 TPD:EAA < 200 TPD:EPA	≥ 300 TPD:EAA < 300 TPD:EPA
Hazardous/Liquid Industrial Waste	EAA	EAA	≥ 200 TPD:EAA < 200 TPD:EPA	≥ 300 TPD:EAA < 300 TPD:EPA

Note: * N/A to private on-site facilities handling own waste.

EAA - *Environmental Assessment Act* applies, EPA - *Environmental Protection Act* applies,
TPD - Tonnes Per Day



CALL TO ACTION

The issues of uncontrolled waste growth, limited disposal capacity, deficiencies in disposal facilities, and planning and approval complexities challenge our ability to deal with waste. The uncontrolled growth of waste generation must be checked and reversed. Dependence on disposal must give way to the full range of conservation, treatment and disposal alternatives as required to balance benefits, risks and costs. Across the province, sustainable waste management systems must be developed. The Ontario Government is therefore taking action to help all sectors of society and particularly municipalities deal with waste management. We all have an important role to play in reducing wastes in Ontario.

In the 1990s some very important decisions will have to be made in a number of areas. These include:

- the expansion of legislative and regulatory initiatives to implement the 3Rs principle in waste management systems;
- improvements to the planning and approvals process for all waste management facilities;
- education of industry, consumers and students about making appropriate waste management choices; and
- implementation of cost accounting and revenue methods that will make municipal waste management systems financially sustainable.

The Ontario Government is committed to its policy of public consultation on important environmental matters that affect Ontario residents. You have an opportunity to influence the decisions that will be made to achieve the goal of a sustainable waste management system.



Between now and October 31, 1990, you are asked to comment on the means and priorities proposed to achieve the goal of a sustainable waste management system by the year 2000. Send your comments to:

"Sustainable Waste Management"

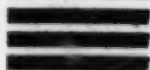
Waste Management Branch
Ministry of the Environment
40 St. Clair Avenue West
Toronto, Ontario M4V 1P5

Additional copies of this discussion paper can be obtained by calling (416) 323-4321.

APPENDIX 1:

Current Ontario Government Supported Waste Management Initiatives

AGENCY	INITIATIVE(S)	DESCRIPTION
Ministry of Environment	Comprehensive Funding Programs for Municipalities/ Industry (financial assistance for 3Rs as well as new or improved municipal waste treatment/disposal facilities)	
	• Municipal Recycling Support Program	Encourage new or expanded municipal source separation projects, popularly known as the Blue Box program
	• Municipal Reduction/Reuse Program	Encourage activities aimed at changing consumer habits or behaviour with respect to waste generation habits (i.e. home composting)
	• Municipal Waste Materials Recovery Program	Support for municipal projects on the recovery of materials from wastes such as central composting facilities.
	• Waste Management Improvement Program	Support for existing waste treatment/disposal sites to upgrade, close, investigate and/or prepare remedial works
	• Waste Management Master Plan Program	Support to groups of municipalities for long range (20 years) for waste management planning
	• Financial Assistance Program	Support to implement landfill, transfer stations or processing facilities including activities such as design, hearings and approvals, land, construction and equipment costs
	• Household Hazardous Waste Program	Encourage establishment of household hazardous waste collection opportunities either in a special day format or at a permanent depot



AGENCY	INITIATIVE(S)	DESCRIPTION
	• Industrial Waste Diversion Program	Support to all industrial and commercial sectors to take advantage of new opportunities for waste diversion from disposal including activities such as feasibility studies, process or equipment modifications and demonstration of technology and research
	• Student Action for Recycling Program	Support to expand municipal source separation projects to Ontario's school boards, independent schools and provincial schools
	Environmental Assessment Program Improvement Project	A Task Force has been established to expedite the review of the Environmental Assessment Program and to prepare a government discussion paper by early summer, 1990. The Ministry is requiring the application of the <i>Environmental Assessment Act</i> to major waste management undertakings for both the public and private sectors.
	Research Advisory Committee	Provides advice to the Minister of the Environment on all aspects of environmental research.
	Environmental Technologies	Support for research and development leading to the commercialization of products or processes that are proven successful on a small scale.
	Ontario Waste Exchange and Canadian Waste Materials Exchange	Assists waste generators with alternatives to disposal.
	Recycling Advisory Committee	An independent group with representatives from industry, environmental groups and universities that provides advice to the Minister of the Environment on matters related to waste reduction, reuse and recycling.

AGENCY	INITIATIVE(S)	DESCRIPTION
Ontario Municipalities	Continuing Development of Waste Management Master Plans by Municipal Steering Committees	Groups of municipalities collaborate on the development of comprehensive long-term waste management plans which incorporate system components to minimize the use of landfill. Forty-two studies involving hundreds of municipalities are currently reviewing waste management issues through this process, and include the following counties: Bruce, Dufferin, Essex, Huron, Lambton, Northumberland, Peterborough, Wellington, Victoria Centre and South Hastings, Collingwood, Wainfleet-Welland, Grenville-Dundas, Gore Bay, Grimsby, Hawkesbury, Howland, Kapuskasing, Kenora, Kingston, Niagara South, Parry Sound, Kearney, Perry, Pembroke, Stormont-Glengarry, Smiths Falls, South Simcoe, Haldimand-Norfolk, Metro Toronto, Ottawa-Carleton, Iroquois Falls, Hornpayne, Leeds and Grenville, Halton Region, Waterloo, and Easthope
Solid Waste Interim Steering Committee	Solid Waste Program for the Greater Toronto Area (GTA)	Collaborative approach to managing the solid waste generated in the five regions of the Greater Toronto Area (GTA); Durham, Halton, Peel, York and Metropolitan Toronto: • Fulfill provincial targets for diversion, 25% by 1992 and 50% by 2000 • Create a state-of-the-art system • Maximize industrial development opportunities • Construct an innovative framework for research and development • Reduce environmental degradation and the real costs associated with conventional waste management systems

AGENCY	INITIATIVE(S)	DESCRIPTION
Ministry of Government Services	Modify the Ontario Government procurement policy and waste management practices	Support markets for recycled products, restrict the use of non-recyclable/non-reusable goods and maximize recycling or recovery of materials such as office paper, cafeteria wastes, etc. This wide variety of 3Rs activity will take place at all government offices, parks and other provincially owned and leased facilities in order to demonstrate that the government is leading the way in waste reduction.
Ministry of Energy	Energy from Waste Capital Assistance Program	Provides capital assistance for EFW facilities combusting non-hazardous wastes, including municipal solid waste.
	Cogeneration Encouragement Program	Provides financial assistance for feasibility studies and design of cogeneration facilities using natural gas, and non-hazardous industrial and commercial waste.